

Supplemental material for: *Connected subglacial lake drainage beneath Thwaites Glacier, West Antarctica*

Introduction

5 This document provides six figures referenced in the main text.

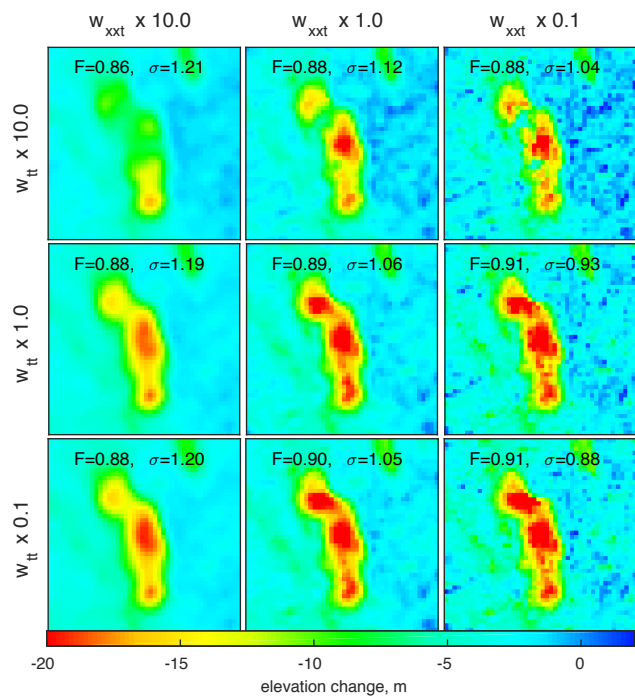


Figure S1. Elevation change solutions around Thw₁₂₄, generated for different values of the constraint-equation parameters. The heading on each row and column indicates how each parameter changed relative to the reference case. Text within each panel indicates F, the fraction of points included in the solution, and σ , the standard deviation of the difference between the data and the best-fitting model.

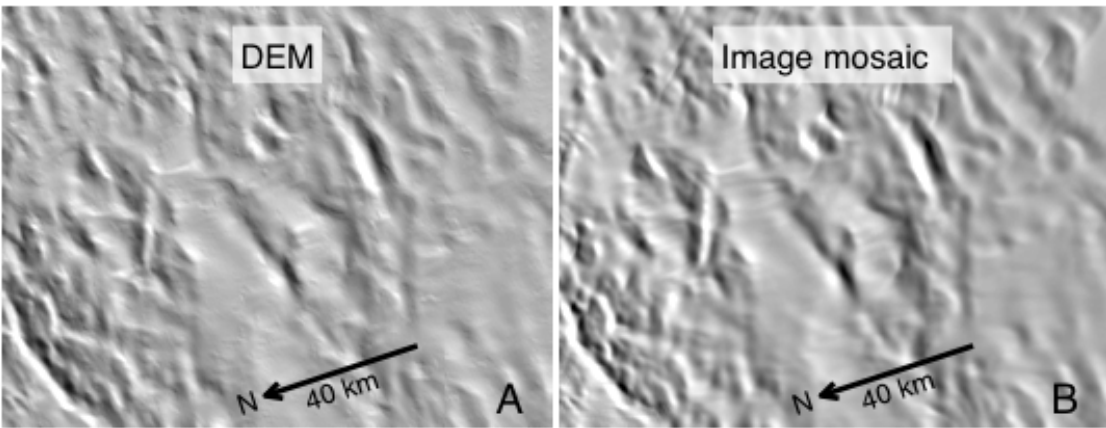


Figure S2. A. Shaded-relief map of derived surface height for June 1, 2011 . B. Image mosaic (Scambos and others, 2007) of the same area. The illumination angle for (A) has been adjusted to approximately match the sun angle in (B).

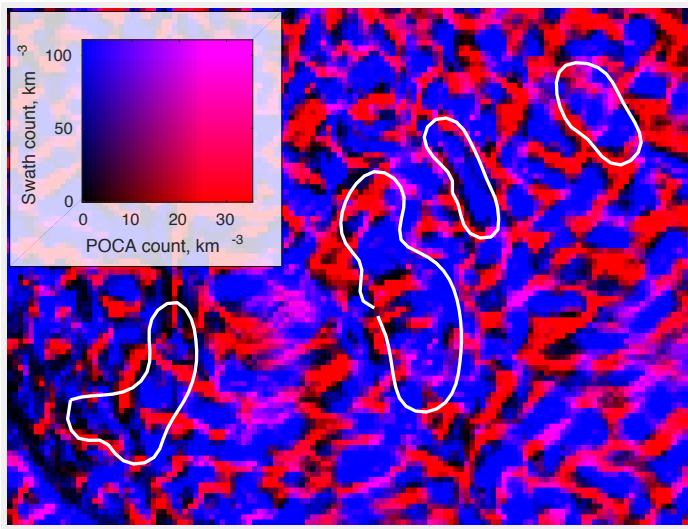


Figure S3. Map of the density of CryoSat-2 measurements after the iterative editing process, for the area mapped in Figure 2. The density of POCA measurements is encoded in the red channel of the image, and the density of swath measurements is encoded in the blue channel of the image. Thus, blue pixels are mostly, or entirely, covered by swath measurements, red pixels are mostly, or entirely, covered by swath measurements, magenta pixels are covered by both, and black pixels are covered by neither.

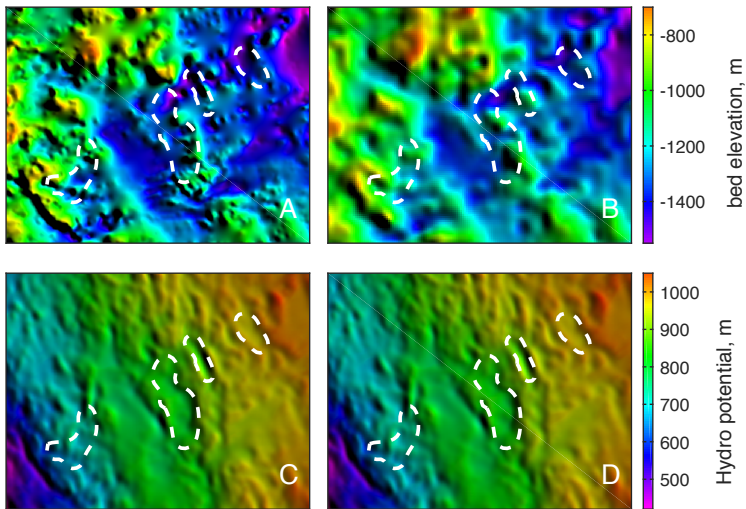


Figure S4. Bed topography and hydropotential. (A) and (C) show the bed topography and hydropotential derived using recent IceBridge campaigns with our spline-fitting algorithm, (B) and (D) show Bedmap-2 bed topography and the corresponding hydropotential.

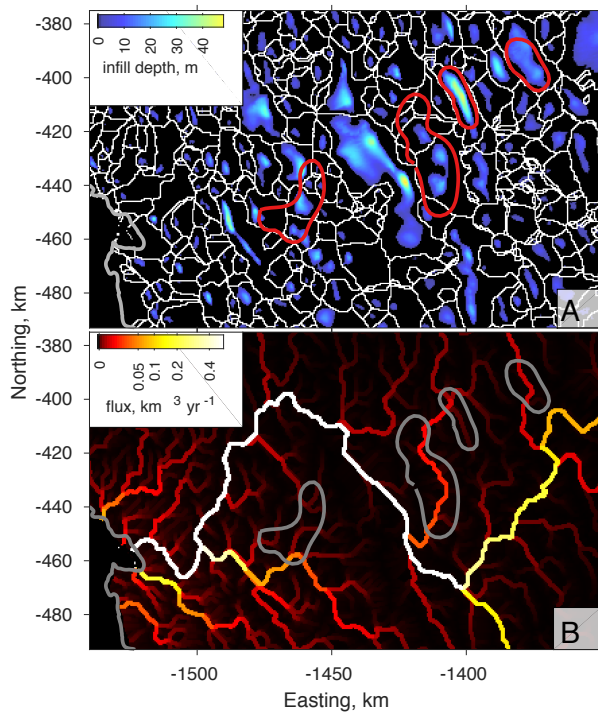


Figure S5. Basins and flow routing based on Bedmap2 bed elevations and the surface DEM derived in this study. This map shows the same area as figure 4, and implies similar routing except in the vicinity of Thw₁₇₀, where water is routed to the west, rather than to the north. A: Merged basins derived from the hydropotential map, and the water-filling depth required to eliminate local water sinks. B. Water-flux magnitude derived from the basal-melt map and the filled hydropotential map.

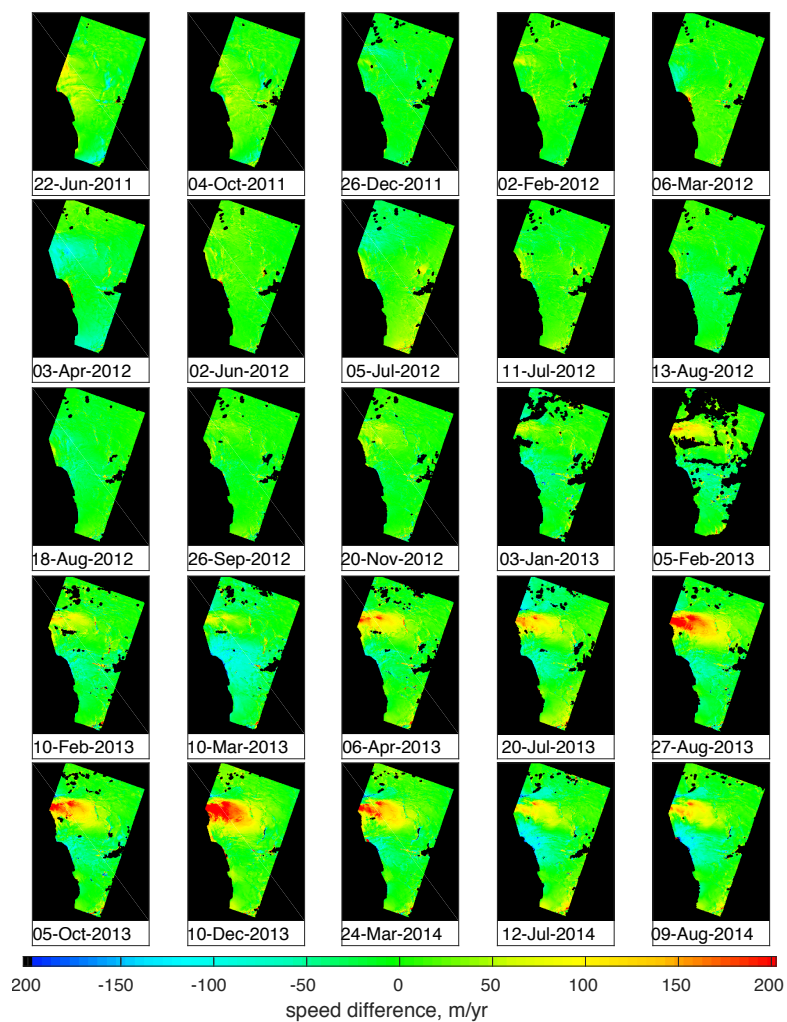


Figure S6. Time series of speed anomalies relative to the mean speed for June 2011 – December 2012. Dates give the average of the times of the two images used to derive each map.